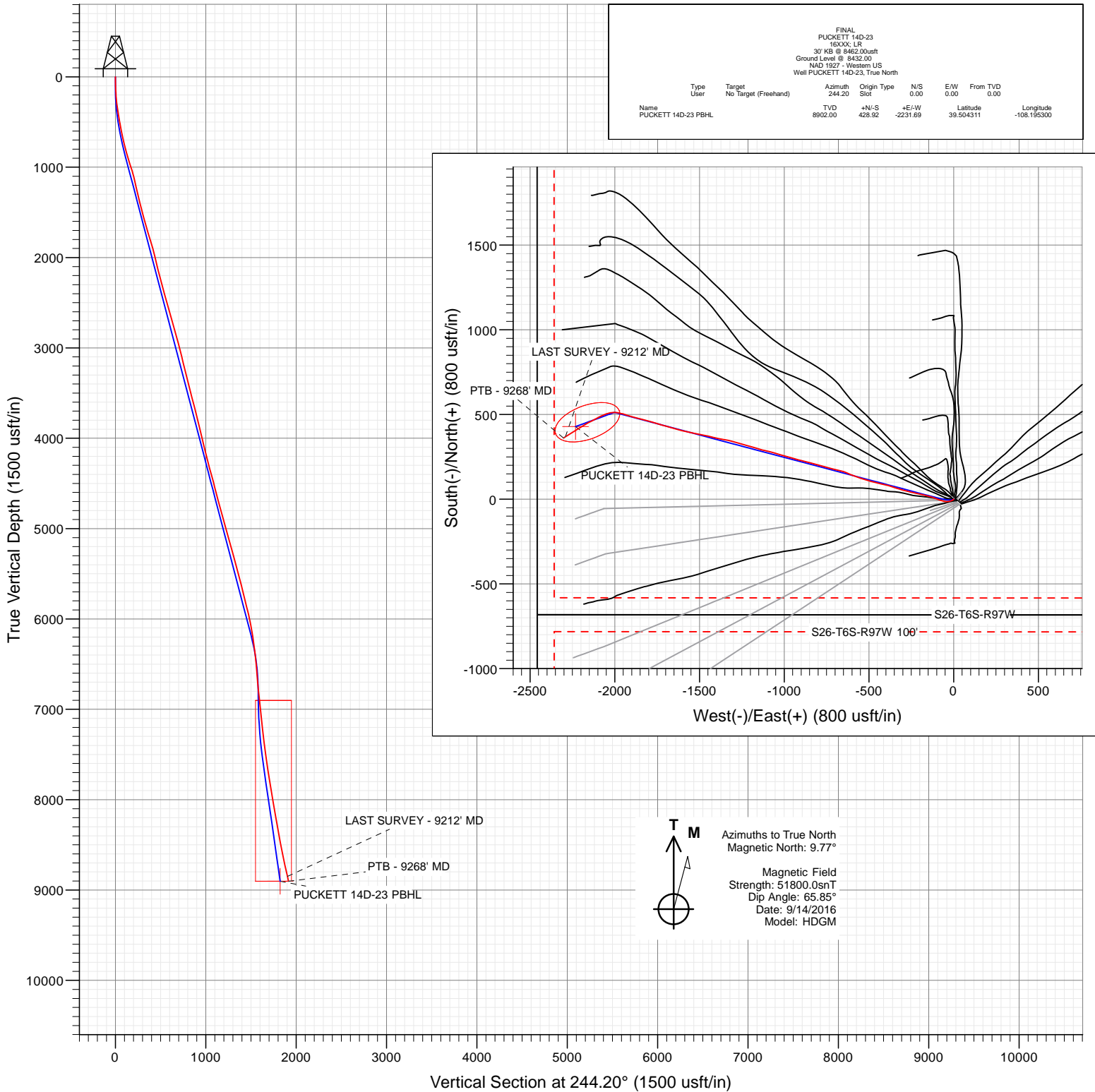




Project: Garfield County, CO (UTM 12N)  
Site: S23-T6S-R97W (MESA N23)  
Well: PUCKETT 14D-23  
Wellbore: OH  
Design: FINAL



WELL DETAILS: PUCKETT 14D-23

+N/-S	+E/-W	Northing	Ground Level:	8432.00	Latitude	Longitude
0.00	0.00	14357520.00	Easting	2433851.00	39.503134	-108.187394



# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Caerus Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well PUCKETT 14D-23
<b>Project:</b>	Garfield County, CO (UTM 12N)	<b>TVD Reference:</b>	30' KB @ 8462.00usft
<b>Site:</b>	S23-T6S-R97W (MESA N23)	<b>MD Reference:</b>	30' KB @ 8462.00usft
<b>Well:</b>	PUCKETT 14D-23	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	USA EDM 5000 Multi Users DB

<b>Project</b>	Garfield County, CO (UTM 12N)		
<b>Map System:</b>	Universal Transverse Mercator (US Survey Feet)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 - Western US		
<b>Map Zone:</b>	Zone 12N (114 W to 108 W)		

<b>Site</b>	S23-T6S-R97W (MESA N23)		
<b>Site Position:</b>		<b>Northing:</b>	14,357,518.00 usft
<b>From:</b>	Map	<b>Easting:</b>	2,433,869.00 usft
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13-3/16"
		<b>Latitude:</b>	39.503127
		<b>Longitude:</b>	-108.187330
		<b>Grid Convergence:</b>	1.79 °

<b>Well</b>	PUCKETT 14D-23		
<b>Well Position</b>	<b>+N/-S</b>	0.00 usft	<b>Northing:</b> 14,357,520.00 usft
	<b>+E/-W</b>	0.00 usft	<b>Easting:</b> 2,433,851.00 usft
<b>Position Uncertainty</b>	0.00 usft	<b>Wellhead Elevation:</b>	0.00 usft
		<b>Latitude:</b>	39.503134
		<b>Longitude:</b>	-108.187394
		<b>Ground Level:</b>	8,432.00 usft

<b>Wellbore</b>	OH		
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>
	HDGM	9/14/2016	9.77
			<b>Dip Angle (°)</b>
			65.85
			<b>Field Strength (nT)</b>
			51,800.00000000

<b>Design</b>	FINAL		
<b>Audit Notes:</b>			
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL
		<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD)</b>	<b>+N/-S</b>	<b>+E/-W</b>
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			<b>Direction (°)</b>
			244.20

<b>Survey Program</b>	<b>Date</b>	11/2/2017		
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
142.00	386.00	Survey #1 (OH)	INC+TREND	Inclinometer + known azi trend
478.00	9,268.00	Survey #2 (OH)	MWD+HDGM	OWSG MWD + HDGM

<b>Survey</b>									
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Vertical Section (usft)</b>	<b>Dogleg Rate (°/100usf)</b>	<b>Build Rate (°/100u)</b>	<b>Formations / Comments</b>
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
142.00	2.15	227.64	141.97	-1.79	-1.97	2.55	1.51	1.51	
173.00	3.03	239.33	172.93	-2.60	-3.10	3.93	3.30	2.84	
203.00	3.91	230.98	202.88	-3.65	-4.58	5.71	3.38	2.93	
294.00	7.12	246.62	293.45	-7.85	-12.17	14.37	3.86	3.53	
386.00	9.40	255.94	384.50	-11.93	-24.69	27.43	2.87	2.48	
478.00	11.25	270.18	475.02	-13.73	-40.96	42.85	3.41	2.01	
570.00	13.23	282.31	564.94	-11.46	-60.22	59.21	3.52	2.15	
664.00	16.48	290.57	655.79	-4.48	-83.22	76.88	4.12	3.46	
758.00	19.78	291.45	745.11	6.03	-110.52	96.88	3.52	3.51	
853.00	21.14	286.79	834.12	16.85	-141.88	120.41	2.23	1.43	
948.00	21.75	281.60	922.55	25.34	-175.53	147.01	2.10	0.64	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Caerus Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well PUCKETT 14D-23
<b>Project:</b>	Garfield County, CO (UTM 12N)	<b>TVD Reference:</b>	30' KB @ 8462.00usft
<b>Site:</b>	S23-T6S-R97W (MESA N23)	<b>MD Reference:</b>	30' KB @ 8462.00usft
<b>Well:</b>	PUCKETT 14D-23	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	USA EDM 5000 Multi Users DB

### Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usf)	Build Rate (°/100u)	Formations / Comments
1,043.00	21.31	280.90	1,010.93	32.15	-209.72	174.84	0.54	-0.46	
1,137.00	19.07	284.50	1,099.15	39.22	-241.37	200.25	2.72	-2.38	
1,232.00	17.14	286.44	1,189.44	47.07	-269.82	222.45	2.13	-2.03	
1,326.00	16.74	284.59	1,279.36	54.40	-296.21	243.02	0.71	-0.43	
1,420.00	17.75	285.03	1,369.14	61.53	-323.15	264.17	1.08	1.07	
1,515.00	18.85	287.67	1,459.33	69.94	-351.76	286.27	1.45	1.16	
1,609.00	20.22	286.70	1,547.92	79.22	-381.79	309.27	1.50	1.46	
1,704.00	21.31	285.21	1,636.75	88.47	-414.17	334.40	1.27	1.15	
1,798.00	21.36	282.57	1,724.31	96.67	-447.36	360.72	1.02	0.05	
1,892.00	20.87	282.22	1,812.00	103.94	-480.43	387.33	0.54	-0.52	
1,987.00	20.39	285.65	1,900.91	111.99	-512.91	413.07	1.37	-0.51	
2,081.00	20.00	290.39	1,989.13	122.01	-543.75	436.48	1.79	-0.41	
2,176.00	19.07	290.31	2,078.66	133.05	-573.53	458.48	0.98	-0.98	
2,270.00	19.95	292.50	2,167.27	144.52	-602.75	479.80	1.22	0.94	
2,365.00	21.05	291.36	2,256.25	156.94	-633.61	502.19	1.23	1.16	
2,459.00	20.17	285.91	2,344.24	167.53	-664.92	525.77	2.24	-0.94	
2,598.00	19.78	280.99	2,474.89	178.58	-711.06	562.50	1.24	-0.28	
2,693.00	20.61	285.03	2,564.05	185.99	-742.99	588.02	1.71	0.87	
2,787.00	20.92	287.84	2,651.95	195.42	-774.95	612.69	1.11	0.33	
2,881.00	20.44	284.33	2,739.89	204.62	-806.82	637.39	1.41	-0.51	
2,976.00	20.17	284.24	2,828.99	212.76	-838.77	662.61	0.29	-0.28	
3,070.00	19.20	285.30	2,917.50	220.82	-869.39	686.67	1.10	-1.03	
3,165.00	18.72	282.92	3,007.34	228.35	-899.32	710.34	0.96	-0.51	
3,259.00	17.40	286.35	3,096.71	235.68	-927.51	732.53	1.80	-1.40	
3,354.00	18.63	285.73	3,187.05	243.79	-955.74	754.42	1.31	1.29	
3,448.00	17.97	284.86	3,276.30	251.58	-984.21	776.66	0.76	-0.70	
3,543.00	18.72	286.44	3,366.47	259.66	-1,013.00	799.07	0.95	0.79	
3,637.00	19.56	287.76	3,455.27	268.73	-1,042.45	821.64	1.01	0.89	
3,732.00	18.68	285.12	3,545.04	277.54	-1,072.29	844.66	1.30	-0.93	
3,826.00	17.84	281.25	3,634.30	284.28	-1,100.94	867.53	1.57	-0.89	
3,920.00	18.68	285.30	3,723.57	291.06	-1,129.59	890.37	1.62	0.89	
4,015.00	18.55	286.79	3,813.60	299.44	-1,158.73	912.96	0.52	-0.14	
4,109.00	17.93	285.65	3,902.88	307.66	-1,186.97	934.82	0.76	-0.66	
4,204.00	18.50	286.26	3,993.12	315.83	-1,215.53	956.97	0.63	0.60	
4,298.00	18.02	285.65	4,082.39	323.93	-1,243.84	978.94	0.55	-0.51	
4,393.00	17.62	285.91	4,172.83	331.83	-1,271.82	1,000.69	0.43	-0.42	
4,487.00	18.72	285.73	4,262.14	339.82	-1,300.02	1,022.61	1.17	1.17	
4,582.00	19.86	281.60	4,351.81	347.20	-1,330.51	1,046.84	1.87	1.20	
4,677.00	18.77	281.25	4,441.46	353.43	-1,361.30	1,071.86	1.15	-1.15	
4,771.00	17.53	280.81	4,530.78	359.03	-1,390.04	1,095.30	1.33	-1.32	
4,866.00	18.28	284.33	4,621.18	365.40	-1,418.53	1,118.18	1.39	0.79	
4,960.00	18.77	282.04	4,710.31	372.21	-1,447.61	1,141.40	0.93	0.52	
5,055.00	19.20	283.36	4,800.15	379.01	-1,477.75	1,165.58	0.64	0.45	
5,149.00	19.78	279.85	4,888.76	385.30	-1,508.46	1,190.49	1.39	0.62	
5,243.00	19.95	281.16	4,977.17	391.12	-1,539.87	1,216.23	0.51	0.18	
5,338.00	19.78	282.48	5,066.52	397.73	-1,571.46	1,241.80	0.50	-0.18	
5,432.00	20.08	285.03	5,154.89	405.36	-1,602.58	1,266.50	0.98	0.32	
5,526.00	19.73	284.24	5,243.27	413.44	-1,633.54	1,290.86	0.47	-0.37	
5,621.00	19.29	286.09	5,332.82	421.74	-1,664.16	1,314.82	0.80	-0.46	
5,715.00	19.25	286.35	5,421.55	430.40	-1,693.95	1,337.87	0.10	-0.04	
5,810.00	19.20	285.47	5,511.26	438.98	-1,724.03	1,361.22	0.31	-0.05	
5,904.00	19.16	287.58	5,600.04	447.76	-1,753.63	1,384.05	0.74	-0.04	
5,999.00	18.77	285.91	5,689.88	456.66	-1,783.20	1,406.80	0.70	-0.41	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Caerus Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well PUCKETT 14D-23
<b>Project:</b>	Garfield County, CO (UTM 12N)	<b>TVD Reference:</b>	30' KB @ 8462.00usft
<b>Site:</b>	S23-T6S-R97W (MESA N23)	<b>MD Reference:</b>	30' KB @ 8462.00usft
<b>Well:</b>	PUCKETT 14D-23	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	USA EDM 5000 Multi Users DB

### Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usf)	Build Rate (°/100u)	Formations / Comments
6,093.00	18.77	284.86	5,778.88	464.68	-1,812.36	1,429.56	0.36	0.00	
6,188.00	17.80	283.80	5,869.09	472.07	-1,841.23	1,452.34	1.08	-1.02	
6,282.00	16.74	284.50	5,958.85	478.88	-1,868.29	1,473.74	1.15	-1.13	
6,376.00	15.56	285.82	6,049.14	485.71	-1,893.53	1,493.49	1.31	-1.26	
6,471.00	13.40	287.93	6,141.11	492.57	-1,916.26	1,510.98	2.34	-2.27	
6,565.00	10.94	287.49	6,232.99	498.61	-1,935.14	1,525.34	2.62	-2.62	
6,660.00	9.23	284.59	6,326.52	503.24	-1,951.11	1,537.71	1.88	-1.80	
6,754.00	7.78	280.02	6,419.49	506.24	-1,964.67	1,548.61	1.70	-1.54	
6,849.00	6.06	282.40	6,513.79	508.44	-1,975.90	1,557.77	1.84	-1.81	
6,944.00	5.98	281.43	6,608.27	510.50	-1,985.65	1,565.65	0.14	-0.08	
7,038.00	5.80	278.70	6,701.77	512.18	-1,995.14	1,573.46	0.35	-0.19	
7,133.00	6.50	270.09	6,796.23	512.92	-2,005.27	1,582.26	1.22	0.74	
7,227.00	7.03	264.64	6,889.57	512.39	-2,016.32	1,592.43	0.89	0.56	
7,322.00	6.55	254.27	6,983.91	510.38	-2,027.32	1,603.22	1.38	-0.51	
7,416.00	5.36	252.07	7,077.40	507.57	-2,036.66	1,612.85	1.29	-1.27	
7,700.00	7.25	247.50	7,359.67	496.63	-2,065.84	1,643.88	0.69	0.67	
7,983.00	8.39	243.72	7,640.04	480.65	-2,100.85	1,682.35	0.44	0.40	
8,267.00	9.76	241.61	7,920.48	460.03	-2,140.60	1,727.12	0.50	0.48	
8,361.00	9.49	241.61	8,013.15	452.56	-2,154.43	1,742.82	0.29	-0.29	
8,550.00	9.93	237.57	8,199.45	436.41	-2,181.89	1,774.57	0.43	0.23	
8,834.00	10.72	239.42	8,478.85	409.84	-2,225.30	1,825.22	0.30	0.28	
9,212.00	13.18	236.43	8,848.63	368.12	-2,291.49	1,902.96	0.67	0.65	LAST SURVEY - 9212' MD
9,268.00	13.18	236.43	8,903.16	361.06	-2,302.12	1,915.62	0.00	0.00	PTB - 9268' MD

### Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
PUCKETT 14D-23 PBHI	0.00	0.00	8,902.00	428.92	-2,231.69	14,357,879.00	2,431,607.00	39.504311	-108.195300
- actual wellpath misses target center by 95.06usft at 9244.94usft MD (8880.70 TVD, 363.97 N, -2297.74 E)									
- Ellipse (radii L200.00 W100.00 on 250.00 azi)									

### Design Annotations

	Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
			+N/-S (usft)	+E/-W (usft)	
	9,212.00	8,848.63	368.12	-2,291.49	LAST SURVEY - 9212' MD
	9,268.00	8,903.16	361.06	-2,302.12	PTB - 9268' MD

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_